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EXPERIMENTAL STATIONS FILE

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ADDRESS OF SECRETARY OF AGRICULTURE W. M. JARDINE GIVEN AT CONFERENCE
OF REPRESENTATIVES OF AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS
TO CONSIDER PROBLEMS ARISING INCIDENT TO THE PURNELL ACT,
HELD AT ST. LOUIS, MO., APRIL 20 AND 21, 1925.

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The Purnell Act affords a great opportunity for service. It is the strongest testimony of confidence in the power of organized agricultural research that this or any other government has ever expressed. It will mark a new epoch in the history of the experiment stations, for on maturity it will treble the Federal appropriations for their support, and it broadens the authorization for investigation in fields that are now looked upon as of primary importance.

The Purnell Act carries with it grave responsibilities. It will arouse large expectations, and in accepting the new funds the stations assume a responsibility far in excess of that previously carried. Through its administrative relations to the measure, the Department of Agriculture will share with the stations both the opportunity and the responsibility which it brings. It is, therefore, time for counsel and for mutual understanding, a close working together for common ends. The department will seek to aid in every feasible way the attainment of the high expectations which the Act merits.

Attention is called to the fact that the Purnell Act is designed to give further aid to a going concern. It is "for the more complete endowment and maintenance of agricultural experiment stations now established."

It recognizes, therefore, that each State already has an experiment station, with its organization, its administrative machinery, and, in large measure, the buildings, lands, and other basic facilities for research. These have been provided and maintained out of funds already at the disposal of the stations, in part from those derived from Federal sources. It is the view of the department, therefore, that the Purnell Act attempts to build on top of what already exists, and that its primary purpose is to develop further investigation and experiment. So it is the hope and expectation that overhead expenses will be cut to the lowest feasible limit, and that this new fund will be restricted, as the Act prescribes, "to paying the necessary expenses of conducting investigations or making experiments... and for printing and disseminating the results of said researches."

Furthermore, it is believed that the fund should be used primarily for investigations of substantial character. It is a fact-finding, fact-interpreting measure. Tested methods of research should be applied to investigations which will yield the most useful results. Every effort should be made to avoid a type of superficial investigation which now has been outgrown. Problems of fundamental importance should be attacked by adequate methods and with full knowledge of other investigations in order to avoid wasteful duplication.

In other words, what is most needed is thoroughly constructive work. The new fund is not for the exploitation of what is known or for speculation based on personal opinion or inadequate data, but it is for sound investigation in the best sense, calling for men and women with breadth and penetration of vision and of demonstrated ability in the research field.

The Purnell Act recognizes in a substantial way the importance of finding solutions for the economic and social problems of the farm. With the growing complexity of modern economic life -- the increasing division of labor, the concentration of large industrial populations in centers far removed from sources of food supply, and the development of a complex system of distribution -- the economic and social problems of agriculture have multiplied. These problems in the past few years have been made more acute by the economic upheaval which resulted from the World War. To meet the insistent demand for foodstuffs during the war the agricultural industry was thrown into high, established cropping methods were laid aside, and heavy drafts were made upon the financial resources of farmers. When the war and post-war inflation finally broke, the agricultural industry was left in an over-extended and unbalanced condition, markets were demoralized, and huge surpluses depressed farm commodity prices below profitable levels, while prices of other commodities and services remained at relatively high levels.

As a result of these influences there has arisen a multitude of economic and social problems with which the experiment stations have not been adequately prepared to cope. Before the war the major efforts of the stations centered about production programs which have yielded notable results both in increasing the quantity and quality of products produced and in lowering the cost of production. During the war production programs received even greater emphasis than before and other phases of the industry were all but forgotten. Since the beginning of the depression the demand for help has been insistent and the experiment stations have been doing their utmost to serve. Harpered as they have been by stationary or decreasing revenues on the one hand and rapidly mounting operating costs on the other, they have not been able adequately to meet the demands that have been made upon them.

The Purnell Act is the Government's answer to this appeal for help. Building on the splendid foundation that already has been laid, the Act greatly broadens the research work of the stations. While some of the work performed with these funds may lie in fields already occupied, it is believed that the framers of the law intended that for the present at least large emphasis should be placed on the economic and social problems of agriculture.

This meeting will undoubtedly spend the major portion of its time in the discussion of economic problems, on the one hand, and those of the home and rural life, on the other -- problems that have not received adequate consideration in the past. Still it must not be forgotten that production problems are after all fundamental and that every possible reduction in the cost of production, every handicap to production removed or controlled, every improvement in the production of a variety or a breed, is a permanent contribution not only to agriculture but to national progress and development as well.

In all of our research endeavors we should always keep before us certain large objectives. Above all we should strive to help farmers establish a profitable and stable agriculture which will enable them to maintain suitable standards of living and build a rich and satisfying country life. At the same time we must have an agricultural industry which will adequately minister to the needs of the Nation now and in years to come. Though surpluses in recent years have unduly depressed prices, the day is not so very far distant when we shall have the problem of providing larger food supplies at prices that will be reasonable to the consumer and that will also yield the producer a fair return for his capital and labor. Our aim should be to

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develop a well-rounded and efficient type of agriculture in which waste is eliminated and the agricultural resources of the Nation conserved for the use of generations yet to come. In our programs of work we must keep an eye not only to the present but also to the future. Ability to direct adjustments to current conditions is of vital importance, but a knowledge of long-time trends and economic cycles will be no less essential in charting a safe course for agriculture.

In the compass of these remarks I can not hope to more than suggest a number of important economic and social problems in agriculture that are pressing for solution. In the field of marketing there are a great many questions to answer. What are the normal requirements of present markets for our products, whether they be local, state, regional national or foreign markets? Can these markets be widened by more adequately meeting market preferences, by redirecting the movement of farm commodities, or can we stimulate consumption and develop new markets at least for certain products? If we enlarge the market for some products, what will be the effect on the outlet for other products? To what extent can the quality and value of various products be increased by grading, standardization, processing and packing?

Do we have adequate statistical information as to production, movement, consumption and prices of various commodities and do we know what these figures show with reference to the trend of demand, supply and prices? On the basis of these facts how should production and marketing be directed?

In the transportation of farm products are we using the most economic methods? Will improved highways and new methods of transportation open up new markets? Do present transportation charges discriminate against producers



of certain regions? Should readjustments in farming methods be made to meet changes in transportation costs?

How does the present marketing machinery work and how can it be made more efficient? Is competition between marketing agencies working freely or are there trade practices and methods of price determination that harm both producer and consumer? To what extent can we reduce the cost of marketing by redirecting production to meet the demands of local markets, or by grading products before shipment?

Does cooperative marketing afford a solution for current marketing problems? How can the management and financial problems of cooperative organizations be most effectively solved. What influence on prices can cooperatives exert? How can they be made effective agencies in better adjusting production to demand?

No less fundamental are the production problems of the farmer. Here again we have a wide range of questions to answer. What systems of farm management have farmers worked out in response to natural and economic conditions in different areas of the states? How should these systems be modified to meet changing economic conditions? How can each commodity be produced most economically in the various areas with present prices and costs? What incomes are farmers receiving and how are these incomes affected by their own efforts, by natural conditions, or by economic conditions? What is the most economical farm unit in various areas, and how can farmers better organize their resources --- land, labor, and capital -- to increase their incomes? What readjustments in the production of various farm products will probably yield farmers the greatest net return for the current year and during the next several years?

The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a proper understanding of the present and for the guidance of the future. The author then proceeds to a detailed examination of the various factors which have shaped the development of the United States, from the early years of settlement to the present day. He considers the influence of geography, climate, and natural resources, as well as the role of the individual and the community. The paper concludes with a series of suggestions for the improvement of the educational system, based on the author's findings and conclusions.

Many of the States have large bodies of undeveloped lands which are gradually being brought into use. In the past much harm has resulted from the settlement of lands that were unsuited to cultivation under the methods then employed. Careful investigations should be made to determine the uses for which these areas are best adapted and whether they should be developed under present and prospective economic conditions. When the time is ripe for the occupation of these lands we should be prepared to direct their development along sound lines.

Adequate consideration also should be given to another group of problems which center about economic institutions and general economic conditions that underlie agricultural development. Are financial institutions adequately meeting the credit needs of farmers? Can they be made to function more efficiently in assisting farmers to acquire land, to produce and market their crops? Are farmers individually and collectively using to the best advantage all available credit facilities? Are farmers using credit wisely and are they in years of prosperity investing their savings and laying by fluid reserves upon which they can draw in years of depression? Are farmers carrying a larger part of the tax burden than other individuals and groups? If so, why, and what can and should be done to equalize the burden? How far can insurance be used to take the gamble out of farming? What makes land values, and what relation do they bear to land tenure, farm incomes, success and failure? How can land tenure conditions be modified to make more equitable the relations between landlord and tenant, to conserve agricultural resources, and to promote ownership of land by tenants?

One of the important objectives in our work will be to improve living conditions on the farm. The Furnell Act, therefore, very wisely provides for research in problems of rural life. Studies of standards of living that prevail in rural communities and of ways and means to elevate standards within and without the home should be made.

This legislation for the first time gives ample authority for carrying on investigational work in Home Economics lines. The problems of the home include some of the most vital factors in the development of a permanent and satisfactory rural life. If farm management studies have contributed to economy and efficiency in the operation of the farm, similar studies in home management should give equal returns in lightening the burdens of the farm woman and give added opportunity for the care and training of children, for social and community work and for the organization of a more satisfactory home life. The application of economic studies to the problems of the home is an important field of work. The food and clothing budgets are among the major cash expenditures of the average farm family and there is undoubtedly the same opportunity for economies and adjustments in the home as we find in farming.

Scientific research has advanced to a point where it is possible to apply its principles to the development of child welfare. Money invested in these problems may not yield as immediate returns in the farm income as studies on the feeding of pigs, but it may easily mean immensely more in the development of a sound and enduring agricultural civilization on which to found a prosperous and progressive nation. Taken as a whole, the Home Economics field should receive every possible encouragement, and wherever leadership is available serious investigational work should be undertaken.

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In this brief survey I have tried to single out a number of important economic and social problems for which you will be expected to find solutions. Some of these problems are common to all farmers and all states, while other problems are more or less peculiar to certain states and regions. In formulating programs of research it is of the utmost importance that a broad, national viewpoint of the industry as a whole be taken. Problems within every state should be viewed in their relation to the state as a whole, and to regional, national, and world conditions.

The Department of Agriculture is gathering a vast amount of information in regard to all phases of agriculture in this country and in other parts of the world. This material, adequately interpreted and kept up to date, throws invaluable light on changes in world supply and demand for various farm products, and affords an essential background against which to study state and regional problems. It is vital, therefore, to the success of our researches that maximum use be made of the available material and resources, both in the Department of Agriculture and in all of the states.

It will be advantageous to conduct many of the projects on a commodity or on an enterprise basis. Specific and reliable information should be obtained in regard to the factors which make for failure or success in the production of various commodities or in various types of farming. Pertinent facts pertaining to natural and economic conditions that affect farm returns in geographic areas of the state should be adequately interpreted and kept currently up-to-date. In some cases this will necessitate gathering of new facts, in other cases it will require more largely the interpretation of facts now available.

A number of stations no doubt will find themselves lacking in personnel adequately equipped to undertake the newer lines of research. The number of men capable of leadership in economic work is relatively limited. On thorough canvass, some stations for the time being may therefore find it wise to strengthen their work in established lines rather than launch new projects for which they can not obtain suitable leadership. Directors of experiment stations, however, have a duty to equip themselves as soon as possible to handle adequately the economic lines of work.

Projects and methods will naturally have to be modified as work advances, but they may be expected to express at the outset a definiteness of purpose and a clear conception of requirements. The amount of money available the first year is so limited that obviously only a few new projects can be started. One thing for which the experiment stations and the department have often been criticized in their tendency to attempt too many diverse studies at one time. It will be well if we can say that the funds available through the first appropriation were not spread out over too many undertakings. Research programs, however, should take account of the contemplated increase in the appropriation and prepare for growth.

Cooperation is good for research people as well as for farmers. Waste and needless duplication are just as reprehensible in research as it is in the handling of farm products, and the Department of Agriculture and the experiment stations should set farmers an example in the elimination of wasteful methods.

It is a reasonable expectation that the Purnell Act will lead to a considerable enlargement of the cooperative relations between stations and with the various bureaus of the department. This seems important at the present juncture. It is in line with the idea of organizing investigation around problems instead of around a single station department. Very many of the problems we now face are too large for individual states acting separately. They are regional or even national, and there is danger of viewing them too narrowly. An experiment station working single-handed can rarely expect to reach conclusive and comprehensive results in such broad subjects. It is important for both the institution and the investigator in many cases to detach themselves sufficiently from the local aspects of a question to view it impartially in its relation to the underlying problem and to what others are doing about it. It is usually easier to do this when a project is being set up than after work on it has become individualized.

There is already a large and constantly increasing amount of cooperation between different bureaus of the department and the stations in investigations of various kinds. It is believed that such cooperation will be even more desirable in the relatively new fields of agricultural economics, rural sociology and home economics. Not only are the problems in these fields of wide range but the available workers are relatively few, so that the utmost use should be made of them. A given station may have an investigator preeminently qualified to study some problem of regional or even national significance. He should be permitted to take the leadership in the study of this problem, and it will be well if he can have the aid of investigations in other states or in the department. Conversely, the department may be so situated that it can best take the leadership in certain studies, and it will

be equally well for it to have the aid of stations in such work. Sometimes groups of station investigators can best deal with a problem under a cooperative arrangement, in which the department may or may not take a part. Whatever the arrangement, there must be a spirit of give and take between research people and due recognition of contributions made by the cooperating parties. These funds were made available for the specific purpose of aiding agriculture, and we must not permit selfish personal considerations or petty jealousies in any way to jeopardize the results of our work.

In these newer fields, then, there is a large place for cooperative effort; but this should be organized on a strictly cooperative basis. It should be arranged and carried out in accordance with carefully considered and matured plans, under which both the individual stations and the appropriate branches of the department will limit their endeavors to comparatively few well chosen projects, into which they can put their best qualified workers and sufficient money to give reasonable assurance of useful results.

The time also is opportune for taking stock of our present work, both in the Department of Agriculture and in the stations. Useless projects should be weeded out. Wasteful duplication should be stopped. The work in some lines of research may be broadened perhaps or better coordinated with other work. The purely scientific work can and should be better correlated with the economic work. Close scrutiny of its entire range of work by each of the stations, and closer cooperative relations between stations will be of far more importance to the future development of agriculture than any strict supervision which the Department of Agriculture might exercise.

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There is also a splendid opportunity for closer cooperation between the research and extension forces. Some of the most effective research work has been inspired through contact with the extension work. On the other hand, the extension service can not function efficiently without tested facts that strike at the heart of the farm problem. Many agronomic questions, for example, have arisen in the past, particularly in the West, because of the great variation in geographic conditions. The results on experiment station farms have often had only limited application. This is true because very little has been done to assemble and organize economic facts and relate them to the crop and livestock experimentation done at the stations. In the last few years several notable attempts have been made in various states to coordinate and test the available material for use in extension work, but much still remains to be done. One of the noteworthy results of these efforts has been the development of a new attitude, a fine relationship between research workers and extension people in the department and in the stations.

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It will be obvious that with the enlargement of the stations' functions and activities and the broadening of relationships, the direction of an experiment station will be a far bigger job than it has been in the past. It will require not only special qualifications, but will call for time to study the lines in which research is most needed, for the effective organizing of these efforts, and for securing and sustaining men and women of the right type for productive research. This important function of administration ought not to be made incidental to other lines of activity, and especially in the large institutions it will be necessary to provide specifically for it. Manifestly the proper organization and manning of this research branch, the maintenance of contacts within and without the individual institutions, and the efficient direction of a program of research employing from \$100,000 to a quarter of a million annually, calls for high qualifications and a large measure of freedom from other engrossing duties.

The responsibilities of the experiment stations in discharging their functions are reflected on the colleges with which they are connected. Research has become a prominent function of these colleges, and its welfare needs the same consideration as other features of their work. Indeed, in a sense it needs it more, because research is the most exacting type of activity, and it calls for special provisions and sympathetic encouragement. It represents the creative branch of the college, and primarily through it the college is able to influence the progress and welfare of the agricultural industry. Hence the wise and effective administration of the experiment station is the concern of every college executive. The new funds will emphasize this.

It perhaps ought to be noted that the Purnell Act is not to relieve the states of their obligations. It is not designed to transfer these obligations to the Federal Government, but to enable the latter to join more liberally with the states in the maintenance of investigation at these institutions. Although the maintenance of experiment stations is not a 50-50 proposition, in effect it has always been a cooperative enterprise between the Federal Government and the States. The Hatch Act, which supplied the initiative for the national system, did not undertake to carry the whole burden. It was designed, as the opening sentence stated, "to aid" in attaining the objects sought in the establishment of these institutions. In advocating this latest legislation much emphasis was laid on what the States are now doing, and on the fact that it was not designed to relieve them but rather to stimulate and further extend their efforts. It is the confident expectation, therefore, that the individual states will continue to bear their part.

Quite naturally the provision of so large a sum of money as the Purnell Act authorizes implies some measure of supervision. This is placed in the Department of Agriculture, and is the same in terms as that provided in the Adams Act. Evidently this was placed in the Act with design and with a view to insuring a quite close oversight, in order to preserve the common purpose, in the common interest of all the institutions concerned. It is not contemplated to inject any new features into this supervision, but to follow in general terms that which has prevailed for nearly twenty years in reference to the Adams Fund. The work under the Purnell Act is not restricted to the same

type of original investigation that the Adams Act specifies, but it has its own purposes and limitations, and it will be the duty of the department under the Act to see that it is administered in accordance with these ends.

It has seemed best, therefore, to deal with the fund on the project basis, and to expect that the annual appropriation will be expended in connection with such a set of projects. The reaching of an understanding with each station in advance in regard to its program has apparently worked well under the Adams Act and may serve as a basis of procedure under the new Act.

It is a very significant thing that at a time when the Federal Government is working under an administrative policy which calls for strict economy in the appropriation and use of public funds, both the President and the Congress have given their support to a substantial increase in the Federal funds for the use of the agricultural experiment stations in all the states. Without doubt the boards of control, administrative officers, and staffs of these stations greatly appreciate this national confidence in the usefulness and importance of their work. It is my firm belief that they will show their gratitude for the signal honor thus conferred on them, and that by careful planning and efficient execution of work under this Purnell Act they will make a large contribution to that tested knowledge on which the future progress of agriculture and the welfare of country life in America so largely depend.

If out of this and succeeding conferences can come a heightened feeling of mutual responsibility which will ultimately express itself in a united attack on the agricultural problems of the Nation, the Purnell Act will be truly epoch-making in its results.

